

Applicant: David L. Anglin Serial No.: 09/829,709 Filed: April 10, 2001

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Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

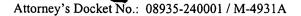
## **Listing of Claims:**

1. (Currently amended) A primary alkaline battery, comprising: a cathode comprising a cathode active material and more than about 5 6% of carbon fibers by weight;

an anode; a separator; and an alkaline electrolyte.

- 2. (Canceled)
- 3. (Original) The battery of claim 1, wherein the cathode comprises more than about 7% of carbon fibers by weight.
- 4. (Original) The battery of claim 1, wherein the cathode comprises more than about 8% of carbon fibers by weight.
- 5. (Original) The battery of claim 1, wherein the cathode comprises more than about 9% of carbon fibers by weight.
- 6. (Currently amended) The battery of claim 1, wherein the cathode comprises between about  $\frac{5}{6}$ % and about 10% of carbon fibers by weight.
- 7. (Currently amended) The battery of claim 1, wherein the cathode comprises between about  $\frac{5}{6}\%$  and about 7% of carbon fibers by weight.
- 8. (Original) The battery of claim 1, wherein the cathode active material comprises manganese dioxide.
- 9. (Original) The battery of claim 1, wherein the cathode comprises less than about 90% of cathode active material by weight.
- 10. (Original) The battery of claim 1, wherein the cathode comprises less than about 88% of cathode active material by weight.





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11. (Original) The battery of claim 1, wherein the cathode comprises between about 82% and about 92% of cathode active material by weight.

- 12. (Original) The battery of claim 1, wherein the cathode comprises between about 84% and about 90% of cathode active material by weight.
- 13. (Original) The battery of claim 1, wherein the carbon fibers have an average diameter less than about 300 nanometers.
- 14. (Original) The battery of claim 1, wherein the carbon fibers have an average diameter between about 100 nanometers and about 250 nanometers.
- 15. (Original) The battery of claim 1, wherein the carbon fibers have an average diameter less than about 250 nanometers.
  - 16. (Original) The battery of claim 1, wherein the carbon fibers have been heat treated.
- 17. (Original) The battery of claim 16, wherein the carbon fibers have been heat treated at a temperature greater than about 2000 °C.
- 18. (Original) The battery claim 16, wherein the carbon fibers have been heated treated at a temperature between about 2600 °C and about 3100 °C.
- 19. (Original) The battery of claim 1, wherein the carbon fibers have a length less than about  $2 \times 10^5$  nanometers.
- 20. (Original) The battery of claim 1, wherein the carbon fibers have an average length between about 500 nanometers and about 200,000 nanometers.
- 21. (Original) The battery of claim 1, wherein the carbon fibers have an average length between about 70,000 nanometers and about 100,000 nanometers.
- 22. (Original) The battery of claim 1, wherein the carbon fibers have between about 1 and about 500 layers of graphite.
- 23. (Original) The battery of claim 22, wherein the carbon fibers have between about 40 and about 100 layers of graphite.
- 24. (Original) The battery of claim 1, wherein the carbon fibers have an average external surface area between about  $10 \text{ m}^2/\text{g}$  and about  $50 \text{ m}^2/\text{g}$ .



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25. (Original) The battery of claim 1, wherein the carbon fibers have a surface energy between about 50 mJ/m<sup>2</sup> and about 300 mJ/m<sup>2</sup>.

- 26. (Original) The battery of claim 1, wherein the carbon fibers have a graphitic index of less than about 85%.
- 27. (Original) The battery of claim 1, wherein the carbon fibers have an average length equal to or greater than an average particle size of the cathode active material.
- 28. (Original) The battery of claim 1, wherein the cathode further comprises a surfactant.
- 29. (Currently amended) The battery of claim 28, wherein the surfactant is selected from a the group consisting of polyvinyl alcohol, ethylene-vinyl alcohol, and polyvinylbutyrol.
- 30. (Original) The battery of claim 1, wherein the anode comprises zinc as an anode active material.
- 31. (Currently amended) A primary alkaline battery, comprising:
  a cathode comprising manganese dioxide and more than about 5 6% by weight of heat-treated carbon fibers having an average diameter less than about 300 nanometers; an anode;
  a separator; and an alkaline electrolyte.
- 32. (Currently amended) The battery of claim 31, wherein the cathode comprises between about  $\frac{5}{6}$ % and about 10% of carbon fibers by weight.
- 33. (Currently amended) The battery of claim 31, wherein the cathode comprises between about  $\frac{6}{6}$ % and about 7% of carbon fibers by weight.
- 34. (Original) The battery of claim 31, wherein the cathode has an electrical conductivity at least 3 times greater than a cathode having about 6% of graphite by weight.
- 35. (New) A primary alkaline battery, comprising:
  a cathode comprising between about 82% and about 92% of cathode active material
  by weight and more than about 5% of carbon fibers by weight;
  an anode:

a separator; and an alkaline electrolyte.

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36. (New) The battery of claim 35, wherein the cathode comprises between about 84% and about 90% of the cathode active material by weight.

37. (New) The battery of claim 35, wherein the cathode comprises more than about 6% of carbon fibers by weight.

38. (New) The battery of claim 35, wherein the cathode comprises between about 5% and about 10% of carbon fibers by weight.

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